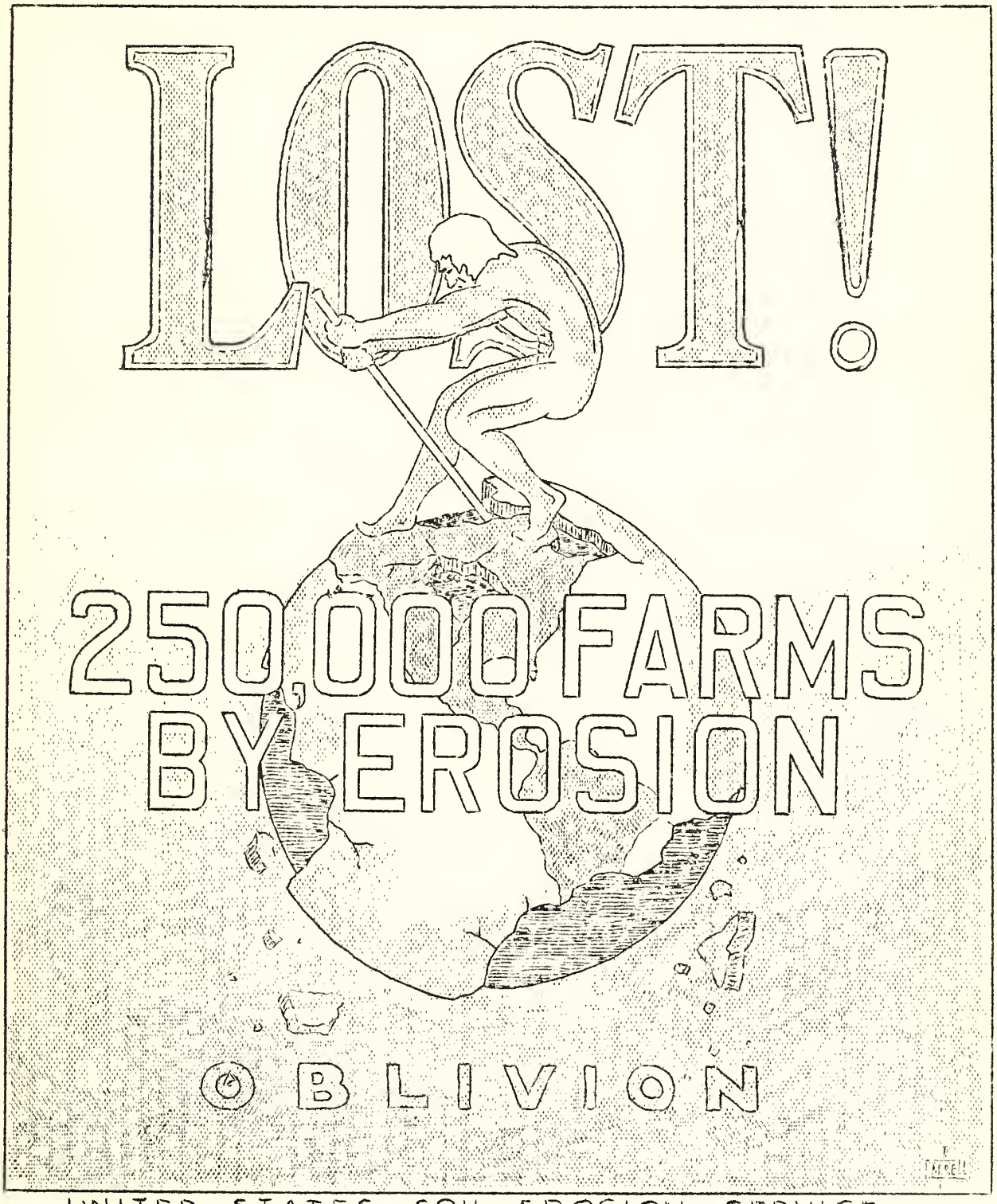
CALIFORNIA EROSION DIGEST

VOLUME 1 - NO. 7. APRIL 1935 -



UNITED STATES SOIL EROSION SERVICE
DEPARTMENT OF AGRICULTURE

CALIFORNIA EROSION DIGEST

U.S. DEPARTMENT OF AGRICULTURE - SOIL EROSION SERVICE
Issued Monthly by California Erosion Control Project

Harry E. Reddick - Regional Director Santa Paula, California

Volume 1 - No. 7 April 1935

(Editor's Note. Our Regional Director made the following radio talk "Making Running Water Walk", as a contribution to the conservation program presented by the Western Farm and Home Hour. The talk was made Tuesday, April 11 from station KPO and nine other stations of the Western Division of the National Broadcasting Company. The Arroyo Grande cooperators, particularly, will be interested in reading this talk)

MAKE RUNNING WATER WALK

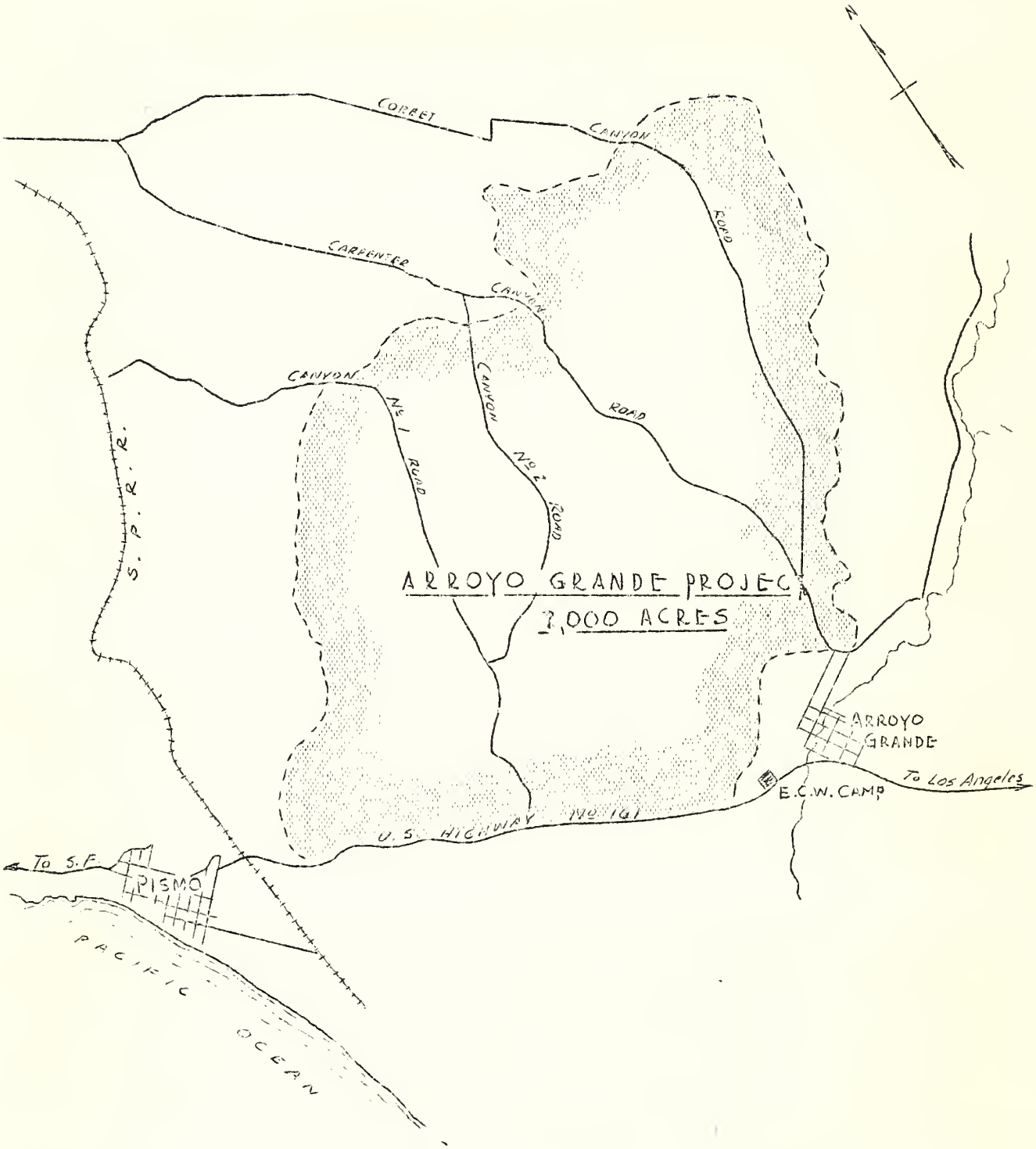
Harry E. Reddick, Regional Director

As we see it the problem of erosion control in the district around Arroyo Grande of San Luis Obispo County is an unusual one. It is unusual because the climatic, soils and cropping conditions are combined to make the problem of control a difficult one, but we who have lived most of our lives on the Pacific Coast are quite familiar with "unusual" things.

California is known throughout the nation for its "unusual weather." A severe frost in the citrus belts, a heavy wind storm in the interior, and even low fogs in the bay region are frequently referred to as being "unusual" for the particular time of the year of their occurrence. It is very "unusual" to have rain on New Year's Day to upset the plans for the Tournament of Roses and the football classic. It is "unusual" to have rain later than May 1st, then again it is "unusual" not to have any rain in the month of January. Thus, Californians have developed the "unusual" habit of referring to climatic conditions as being "unusual".

It is, therefore, natural to refer to a heavy rainstorm, or "gully washer", as an "unusual" one. Yet, nevertheless, every rainy season there are rainstorms, either general or scattered, over the State, that are regular gully-washers and where sloping fields are clean cultivated and unprotected, serious damage from soil erosion is the natural result, not the unusual result. This soil erosion or damage to the fields occurs because the rain falls faster than it can soak into the ground. The ground becomes saturated and the excess starts running down the slopes, first in tiny rivulets which soon join other tiny rivulets to form tiny streams that grow rapidly larger as they rush down the slopes. We call this "stormwater" or "runoff".

The runoff flowing down the slope carries with it particles of the topsoil. The faster the water runs and the larger the tiny streams become, the greater the amount of topsoil that is carried from the rich fields to the rivers, water channels, and reservoirs. Thus it is that the rushing waters on the slopes and in the channels carry away the farmer's best soil. Now, slow flowing water



will not pick up the soil in the first place and water that is already charged with sediment will drop a large percentage of its silt load when it is slowed down, which is the reason for the slogan, "Make Running Water Walk".

How this can be accomplished in our clean cultivated sloping fields and hillsides in an area where "unusual" rains are of frequent occurrence, can

bost be explained by describing the Arroyo Grande Project of the Soil Erosion Service.

The Arroyo Grando Project was the second soil erosion control and prevention demonstration area to be established by the United States Soil Erosion Service in California. It is located in San Luis Obispo County approximately midway between San Francisco and Los Angeles, which makes it particularly suitable as a site for a demonstrational project. It embraces all the lands lying within the watersheds of four small canyons and includes about 7,000 acres of which 5,000 acres are now being cultivated. The area consists entirely of rolling to undulating hilly areas with minor portions of steep slope. The soils are a light to dull, brownish gray, sandy loam on the surface with a subsoil of sandy clay texture of the same or lighter shade of color. These are underlayed with a sandy bed rock at depths varying from 4 to 10 feet.

The Arroyo Grande Project is typical of a much larger area in conditions of climate, soils, crops, topography and erosion. In its virgin state the area was covered with beautiful live oaks and many of the present San Luis Obispo County residents helped to cut the oak trees and clear the land about forty years ago. The clearing of the land was followed by a period of stock-raising that was, in later years, replaced by the growing of grain hay and dry farmed beans. About twenty years ago it was discovered that the soil and climatic conditions were favorable for growing winter peas. While the land should not be considered frostless, nevertheless, killing frosts are considered unusual. Profitable crops of winter peas have been grown during the past dozen years but, unfortunately, winter peas are conducive to severe erosion because the crop is grown and clean cultivated throughout the rainy season. It is an agricultural practice in this area to cultivate after each rain, thus leaving the fields ready for repeated damage by erosion with each succeeding storm.

Neither the roots nor foliage of pea vines, that are planted in rows, are of any particular value in protecting the soil and frequently the peas are planted in rows up and down the steepest grade of the slope. Unfortunately this same wasteful tillage practice is found from the bay region to the Mexican border on the coastal plain. It forces the farmer to spend much time in keeping his top soil in place when he should be either raising or harvesting a profitable crop.

The primary purpose of erosion control is to keep as much of the rainfall on the fields and in the soil as it is possible to do and, thereafter, to provide a safe exit for the excess storm water or runoff. Contour cultivation, strip crops of permanent grass, and cover crops are the first methods used to accomplish this object. Next, the sloping fields are laid out with a series of ditches across the surface and around the hills on grades in order that the runoff water will neither cut nor fill the bottoms of the ditches. This is the erosion engineer's attempt to make running water walk.

We will describe the method of construction. First, the Agronomists, the Soil Experts, and Engineers of the Soil Erosion Service determine the spacing, grades, and other features to be used in a particular field. The grade lines are then smoothed out so that the curves will be easy to follow in cultivation and irregular portions of the curves eliminated. One or two plow furrows are then used to make out the ditch. These are followed by a simple "V" type grader known as the Marten "V" or a road grader and, in a few trips, the

ditch and its bank on the lower side have been made. Low places in the ditch bank are then filled in with Fresno scrapers. Care must be used in compacting the banks in low places. Sometimes, shaping by hand is needed. The banks below the ditch should have a slope not steeper than 1½ to 1 and a slope of 2 to 1 is found much better.

The ditches are from 18 to 30 inches deep with gently sloping sides. The ditch channels and banks are planted with soil-binding vegetation such as wild oats, clover, alfilaria, and other native grasses immediately after construction. These drains are built on grades of from 1% to 6% depending on the slope, the type of soil, and the length of the ditch. They are spaced from 30 to 100 feet apart, the interval determined by the steepness of the field, the soil and particularly, the erosivity of the soil. The steeper the slope of the hill, with a given soil type, the closer the drains must be in order to reduce sheet erosion to a minimum. Due to this placement each ditch has a narrow strip of sloping field to protect and carries relatively small amounts of runoff water. Following the installation of these protective measures all cultivation and planting is done parallel with their courses.

Care should be taken to provide for the ditch outlets and the step-down dams in the diversion ditches before the field ditches are constructed. An exceedingly important item is to have the correct grade for the ditches so that they will neither cut nor fill. When completed, the system is ready for the first gully washer.

This plan, of course, necessitates the farming of point rows but, the farmer had better contend with a few point or stub rows than to lose the top-soil on which he depends for his crop.

The cross ditches all lead into diversion ditches where the water is carried away to the main stream channels. The successful construction of such a sidehill drainage system, as I have just described, depends upon two important factors. The first is the construction of safe, properly designed, and permanent ditch or terrace outlets from the grade ditches into the diversion channels. Second, the diversion ditch must be protected with a cement or cobblestone lining or have constructed, at proper intervals, cement or masonry spillways that will make the water flow slowly toward the outlet--or again--make the running water walk.

It might be well to note, at this time, that a part of this system often includes a cutoff ditch above the field protected, to take care of the accumulation of runoff water from the neighbor above. The outlets of this drain are built with concrete headwalls or cutoff walls and the spillway either lined with cement, masonry or half-circle corrugated iron culvert material.

Vegetation is again used in a large way to protect the sides and bottoms of the diversion ditches and to keep the drain banks in place. Incidentally the vegetation on the ditch banks will provide summer pasture when the crops are out of the way. Sloping fields and hillsides thus protected with ditches and their vegetated banks, give the appearance of zebra stripes. The whole scheme or system in this plan is to carry away safely, the excess storm water by ditches and channels on grades that permit the water to move slowly and thus make running water walk.

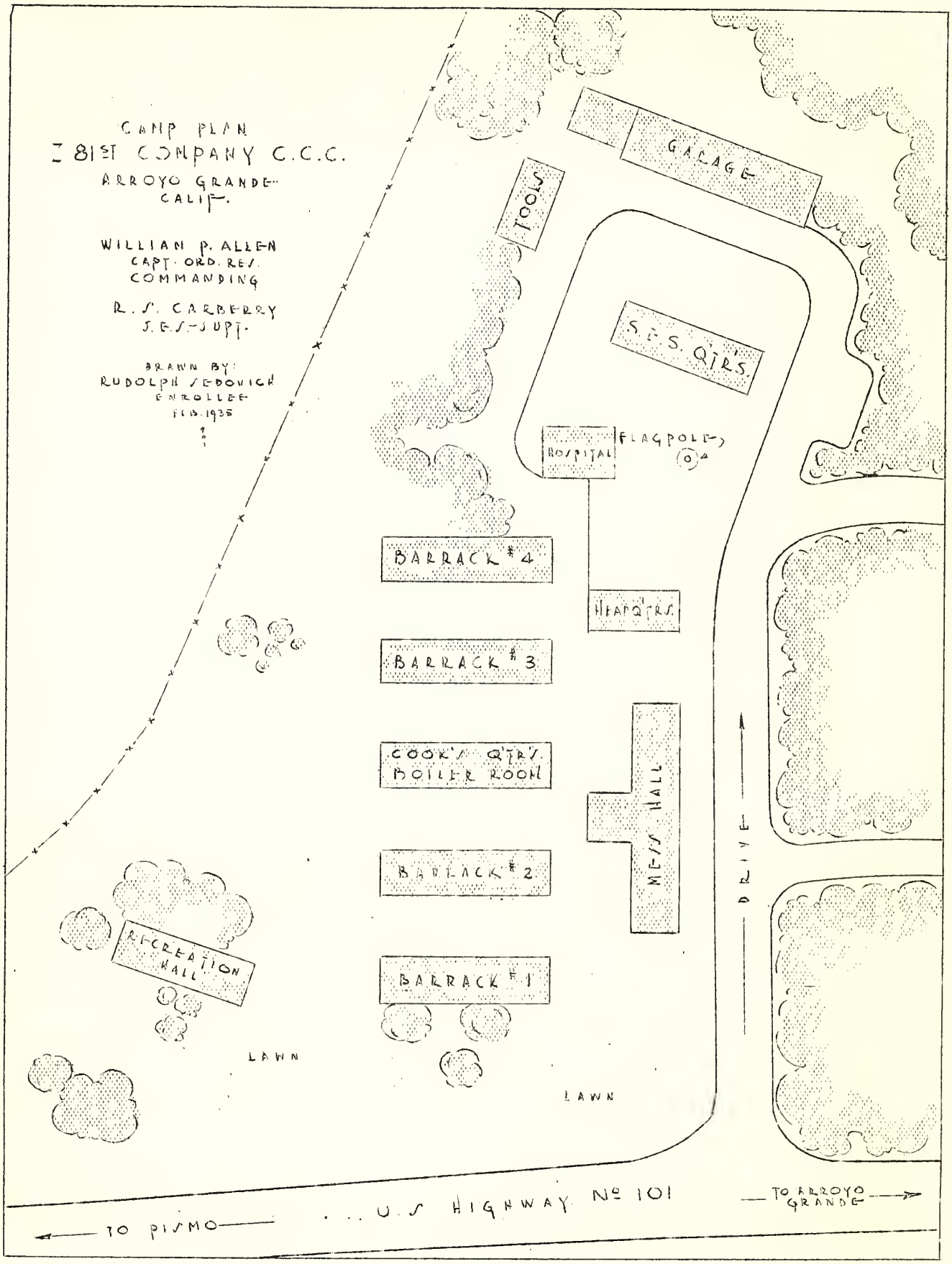
Many of the fields in the Arroyo Grande Project were protected, last October and November, by the methods I have described and there is a striking contrast with adjoining unprotected fields. In the treated fields, the crops of peas and grain hay are now growing and giving a splendid appearance whereas on the unprotected fields, there is evidence of serious loss through soil erosion. It is planned to complete the entire demonstration project with the cooperation of the farmers combined with the services of the United States Soil Erosion Service, CCC Camps and other agencies.....

ARROYO GRANDE COOPERATORS

Mrs. Rosie F. Avila
Mrs. Anna L. Bailey
Antone Beitler
David Benoit
Mrs. Etta A. Brisco
Tony Brown
Mrs. Emilie Bruce
Joe P. Cardozo
John P. Cardozo
Manuel P. Cardozo
Antone Costa
Louis de Amorino
William H. Dowell
Louis L. Erthel
Aaron Fithian
Mrs. Eda Gibson
Martin L. Hischier
James Kadlovec
John L. Lawrence
Mrs. Margaret A. Lowther
Alton Mallory
William T. Mantz
Flourian Marslek
Llorian Marslek
Max W. Matejcek
Carl J. Metzler
Mrs. Hulda Neergaard
Ernest Noyes
Joe D. Oliveria
Frank F. Ormonde
Joseph F. Ormonde
Manuel F. Ormonde
Herman Page
Bento A. Pereira
Atanacio Rivera
Franz H. Ruedi
Fred G. Sauer
Charles R. Schenck
Ernest Scott
Clinton M. Seibert
Mrs. Anne Shipsey
J. E. Stevens
Humphrey Sullivan

CCC BOYS FROM ARROYO GRANDE CAMP NOW IN IDAHO

The ECW camp at Arroyo Grande which has been working in the U.S. Soil Erosion Service demonstration area has been transferred to Idaho where it will become a Forest Service camp. The ECW, veterans' camp, from Morro Bay has been transferred to Arroyo Grande. ... The Goldbricker, CCC publication, says: "While the lure of the northwoods is very appealing, we will all be sorry to leave such a fine district. With the movement to Idaho, Company 281 changes from a Soil Erosion to a Forest Service camp, so we take this opportunity of thanking the Soil Erosion personnel for the fine association we have had with them. ...Harry E. Reddick, Regional Director, has shown a deep interest in both the men and the work at Arroyo Grande. His movies and pictures of the camp have stimulated interest in the work. Upon E. J. Carpenter, Soil Expert, (Ed. Note: Now with the Gila River Project, Arizona), A. E. McClymonds, Chief Agronomist, (Ed. Note: Now Regional Director for Colorado), and J. G. Bamesberger, Chief Engineer, has fallen the major portion of the actual planning of the work project. A. E. Burns, Agricultural Engineer, has been the moving force in seeing that the welfare of the men was cared for. ...Extention Agent, W. B. Hooper, by his semi-monthly illustrated lectures, not only entertained the men, but showed them that they are doing a valuable piece of conservation work.....Superintendent Ray S. Carberry has not only proved himself a capable executive, but his personal interest in the wel-


CAMP PLAN
181ST COMPANY C.C.C.
ARROYO GRANDE
CALIF.
WILLIAN P. ALLEN
CAPT. ORD. RES.
COMMANDING
R. S. CARBERRY
S.E.S.-SUPT.
DRAWN BY:
RUDOLPH SEDOVICH
ENROLLEE
FEB. 1935
GARAGE
TOOLS
S. E. S. QTR'S.
HOSPITAL
FLAGPOLE
BARRACK #4
HEADQ'TRS.
BARRACK #3
COOK'S QTR'S.
BOILER ROOM
MESS HALL
BARRACK #2
RECREATION HALL
BARRACK #1
DRIVE
LAWN
LAWN
TO PISMO
U.S HIGHWAY Nº 101
TO ARROYO GRANDE

fare of the men and the improvement of the camp, and his willingness to cooperate have helped create the cordial relationship which exists between the two services that compose the camp."

SOIL EROSION WORK CONSOLIDATED IN THE DEPARTMENT OF AGRICULTURE

On March 25th the Soil Erosion Service was transferred from the Department of Interior to the Department of Agriculture. The work in establishing erosion control demonstration areas has been effectively carried in the Department of Interior since October 1933. The transfer has been made in the interest of coordinating the activities of the various agencies interested in soil erosion. The Soil Erosion Service will operate as a separate unit of the Department of Agriculture.

The soil erosion investigations and experiment stations heretofore conducted by the Bureau of Chemistry and Soils and the Bureau of Agricultural Engineering, and the erosion control nurseries and activities of the Bureau of Plant Industry will be conducted under the supervision of the Soil Erosion Service. Rexford G. Tugwell, Under Secretary of Agriculture is in charge of the expenditure of funds allocated for the work and H. H. Bennett has been named Chief of the Soil Erosion Service.

TO THE COOPERATORS

The transfer does not imply any changes in the cooperative agreement made with the Soil Erosion Service. All of the soil erosion control work is now under the direction of one service and can be carried on most efficiently without duplication of effort.

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Dr. Stanley W. Cosby, recently appointed to fill the position of Chief Soils Expert in California, arrived in Santa Paula on the seventeenth. This position was formerly held by Mr. E. J. Carpenter, who is now Chief Soils Expert for the Gila, Arizona erosion project. Dr. Cosby, a native of Illinois, graduated from the University of California and has been, for a number of years, Assistant Soil Technologist of that institution. He has been in charge of or assisted in the soil surveys of the following areas: Brawley, Big Valley, Victorville, Eureka, Lancaster, Gilroy, Hollister, Auburn, Chico, Salinas, Clear Lake, Suisun, Dixon, Lodi, Napa, Contra Costa, Delta. He is also the author of a number of University of California publications on subjects in the field of soil technology.

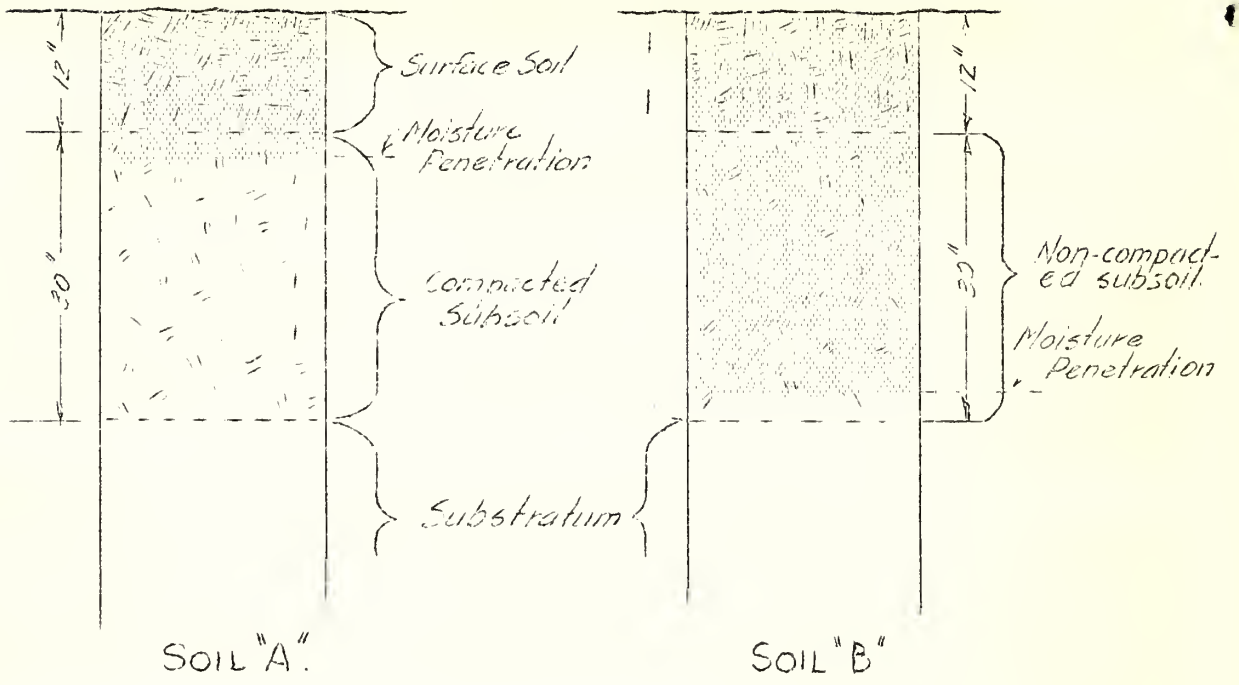

Diagram showing depth of penetration of water on two different soil types. Soil "A" necessarily has a greater run-off and accompanying soil loss.

It is not intended to give the impression that all is known about the causes of erosion. The following points are merely observations made on the Las Posas area. All of these points are inter-related, so that no one is outstanding, all being affected by one or more of the others.

What of soil texture? Texture undoubtedly affects the degree of erosion. How? By the fineness of the soil particles, by the percentages of sand, silt, clay, and colloids. These affect the degree of crumb structure in the soils, which in turn has a direct bearing upon the permeability of the soil, or the speed or rate at which the soil absorbs rainwater. This also is a factor which determines the amount of water the soil can hold to the point of saturation.

Closely allied to texture is the structure of the soil in surface, subsoil and substratum. With what effect upon erosion?

In the most erosive soil in the Las Posas, the "Honda" series, the structure is one of the most noticeable factors. Honda soils are generally recognized by the dull reddish brown color of subsoil, usually exposed on the lower slopes. These soils are composed of a light surface soil with a very tight, compact subsoil. The surface soils have a low water-holding capacity. The subsoil, being compact, allows the water to penetrate it very slowly. As a result, during a rain, the surface soils reach a point of saturation, or capacity, rather quickly, with a consequent overflow, or run-off, with the accompanying soil loss, or erosion.

The above sketch illustrates the penetration of succeeding showers totaling two inches on two soils, one with the compacted subsoil, the other without the compacted layer.

Soil "A", with compacted subsoil, absorbs about 1.25 inches of water in the surface 12 inches of soil to the point of saturation. Additional showers above 1.25 inches cannot possibly be absorbed, hence must run off, with accompanying soil loss. Soil "B", having a permeable subsoil, could absorb the two inches of water successfully.

Ordinarily, we associate erosion from rainfall with a rather severe slope. That is not unnatural. But, do we know whether or not some of the soils on the flat or gently sloping areas are erosive? Frankly, we do not! We suspect that some of the soils on these areas would probably prove rather severely erosive were it not for the degree of slope at which they now repose. On the other hand, are all the soils on the steepest parts of the Las Posas area heavily eroded? They are not! Consequently, while slope is important, we cannot say that it is the most important factor.

Vegetative cover should be identified with slope. It can be noticed that on some of the extremely steep portions of the area that have a vegetative cover of native plants, the amount of erosion is very small, as is the run-off of water. Even on those slopes with soils of very light and sandy texture, the soil loss is very small. True, such a light soil is very permeable to water, but not sufficiently so as to absorb a rainfall such as fell on the area on January 5, when six-tenths of an inch fell in 18 minutes. In spite of that, the soil loss on the covered slopes was very small in comparison with the non-vegetated slopes. Therefore, we may safely say that the lack of cover is one of the important causes of erosion.

The history of the cultivation practices of any land is important in determining why a soil is erosive. The type of implements used, type of cropping, and the length of time that the land has been under cultivation all are contributing factors in any determination.

Other erosion causes are over-grazing and fire -- or drought. Oh yes, and weather! Mark Twain said that everybody talked about the weather, but that no one did anything about it. Surely, if we could have all our rains in gentle, well spaced showers, all our erosion problems would disappear.

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Those of you who are interested in the wind erosion problem of the corn and wheat belt should read Harlan Miller's article in the New York Times magazine section called "Dust Rides The Winds Out of the West", date March 31, 1935. A few phrases will give you an idea of what wind can do on a rampage over lands that have been over-cultivated, pulverized, and generally mistreated. ... "Plowed recklessly during the World War and since, denuded of the vegetation which knits the earth against the onslought of the winds, powdered by drought for years, these arid lands have taken wing." ..."For twenty-five years the rainfall in the section between the Corn Belt and the Rocky Mountains has been diminishing. And during that period farmers have been stripping the protective short grass and other low vegetation from what nature has designed for pasture land. The wind has done the rest. ..."

NEW CROPS FOR EROSION CONTROL DEMONSTRATION AREAS.

Richard E. Baker, Junior Agronomist

The fact that the best protection for erosive soils is a cover of close growing vegetation has been amply demonstrated again this year in the erosion control demonstration areas. One of the difficulties in securing the protection afforded the soil by close growing plants is the length of time required for these plants to reach sufficient size to prevent rainwash. The best way to protect the land from early winter rains until the winter growing crop affords protection seems to be through the use of summer growing plants which will serve as a nurse crop for the young winter growing seedlings.

Trial plantings of several of these winter growing crops with several of the possible summer nurse crops will be made on the most important soil series of the Las Posas Area: Altamont, Rincon, and Honda. One acre plantings are planned on six different properties on slopes varying from 20% to 45%.

The accompanying chart shows some of the crops which will be under observation in our trial plantings. Some of the characteristics to be especially noted are: rate of growth, quality and quantity of growth with regard to pasture value or hay production, seed habits, and value for erosion control. The first seventeen crops indicated, grow during the summer months. They will be planted at approximately the usual time for planting lima beans or blackeye cowpeas on the Las Posas Area. The last seven crops are winter growing perennials. They are all valuable pasture plants.

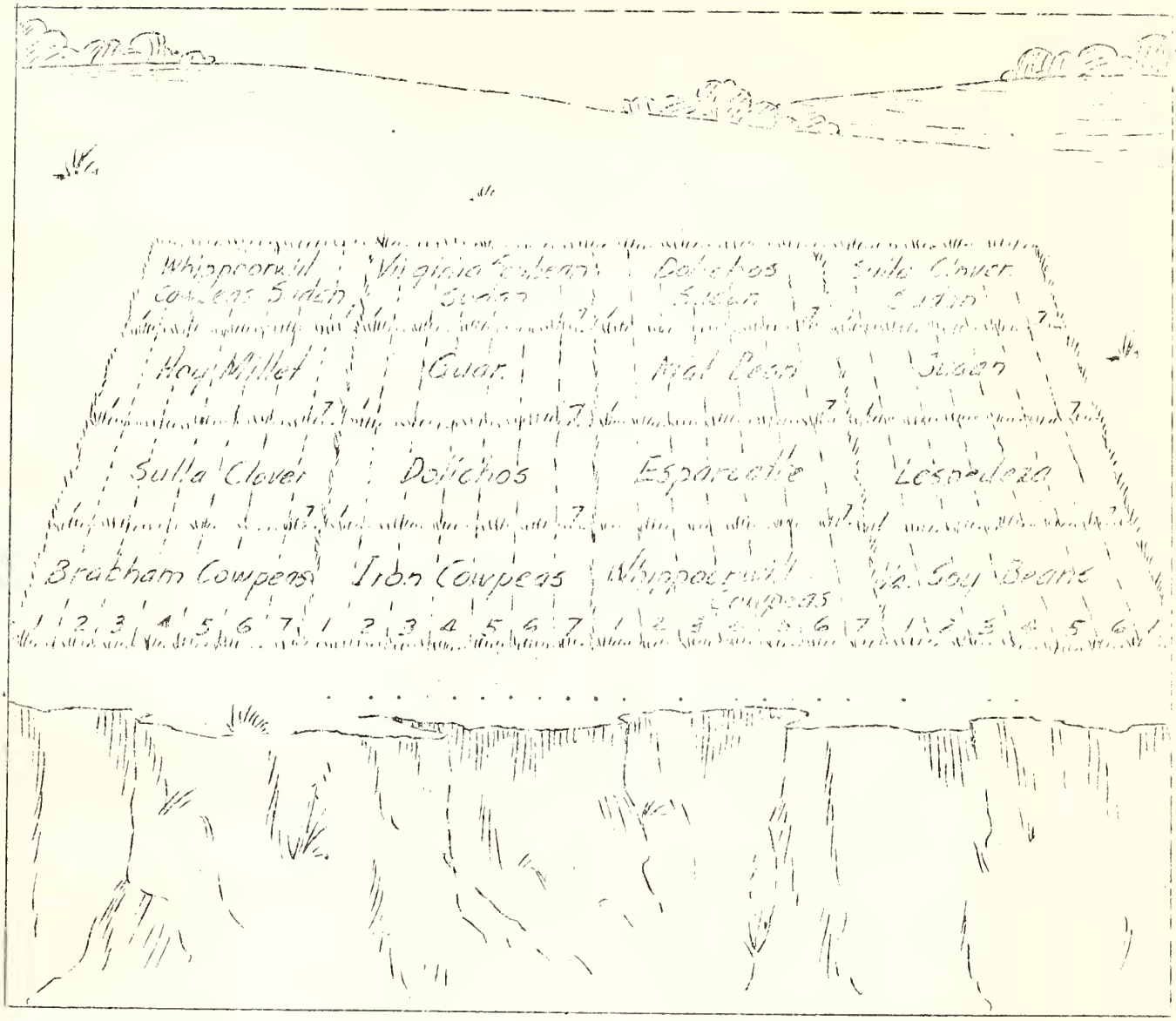
The sketch shows the field plan for some of the trial plantings. The summer crops are sown in rows or drilled on the contour, as indicated. The fall planted crops (indicated by numbers) are broadcasted in the rectangular areas shown extending up and down the hill.

The purpose of this particular plan is twofold. First, it is designed to determine the value of certain plants for pasture, hay or seed production, and erosion control. In connection with the latter, they may be used in strip crops, on earth-fill dams, contour ditch banks, land to be retired from cultivation, and in pasture improvement. Second, these plantings are arranged to test a new cropping system for this area.

The summer crops are planted to the proper depth in rows, or drilled, on the contour. At this time of the year there is usually a dry mulch on the ground varying in depth from two to four inches. The summer crops are planted in the moist soil below the dry mulch; consequently they will germinate, if conditions are favorable, and start growth. The winter growing crops will be broadcasted at the same time in the rectangular blocks extending up and down the hill. The plots will then be harrowed. The result will be that the summer growing crops planted in moist soil will produce abundant growth during the summer and fall months; while the winter growers, covered 1 inch deep in the dry mulch will remain dormant until the rainy season the following fall. With this cropping system the ground and fall crops are adequately protected from erosion when the first rains occur; hence the danger of sheet and gully erosion will be greatly reduced. It is hoped that a uniform stand of the perennial fall crop will be insured. If the summer grower is also a perennial, the possibilities of good

CROP	VARIETY	SPECIAL SOIL ADAPTATION	Regional Adaptation				Perennial	Phenology (mths)	Planting Date	Pounds per Acre	Planting Method	Planting Depth	Uses other than protection of land and fall perennial crop from erosion
			Las Posas	Arroyo Grande	Watsonville	Annual							
1. Cowpeas	Whippoorwill	Well-drained	s	s		s			4/15-4/30	15-20	30" rows	2-4"	Hay, Pasture
2. Cowpeas	Iron	Well-drained	s	s		s			4/15-4/30	15-20	30" rows	2-4"	Hay, Pasture
3. Cowpeas	Brabham	Sandy	s	s		s			4/15-4/30	15-20	30" rows	2-4"	Hay, Pasture
4. Subla clover		Calcareous	s	s	s		s		4/1 -4/15	20	30" rows	1-3"	Hay, Pasture
5. Dolichos			s	s	s	s			4/1 -4/5	25	30" rows	2-4"	Hay, Pasture
6. Soybeans	Virginia		s	s	s	s			4/1 -4/15	20	30" rows	2-4"	Seed
7. Kudzu			s	s			s		4/30-5/10	10	36" rows	1-3"	Pasture, Hay
8. Pigeon Pea		Well-drained	s				s		4/30-5/15	25	36" rows	1-2"	Pasture
9. Velvet beans			s	s		s			4/25-5/10	60	30" rows	2-4"	Pasture
10. Esparcette		Calcareous	s	s	s		s		4/1 -4/5	20	Drill	1-3"	Pasture
11. Ornithopus		Moist, sandy land (acid)		s	s	s			4/1 -4/10	50	Drill	1-2"	Pasture
12. Sudan			s	s	s	s	s		4/1 -4/20	8-10	18" rows	1-3"	Seed;Hay;Pasture
13. Millet	Hog		s	s	s	s			4/1 -4/20	15	Drill 12"	1-2"	Seeds
14. Millet	German		s	s	s	s			4/1 -4/20	12	Drill	1-2"	Grain
15. Lespedeza	Korean	Well-drained	s	s		s			2/15-4/1	20	Drill	1-2"	Pasture
16. Guar			s	s		s			4/1 -4/30	25	24" rows	2-4"	
17. Matbean			s	s		s			4/1 -4/30	10	24" rows	2-4"	Pasture
1. Rye Grass		Calcareous	s	s	s		s		12/1-12/20	25	Broadcast	1-2"	Hay, Pasture
2. Harding Grass			s	s	s		s		12/1-12/20	3-10	Broadcast	1-2"	Hay, Pasture
3. Burnet			s	s	s		s		12/1-12/20	25-30	Broadcast	1-2"	Hay, Pasture
4. Brome Grass			s	s	s		s		12/1-12/20	25	Broadcast	1-2"	Hay, Pasture
5. Crested Wheat			s	s	s		s		12/1-12/20	25-30	Broadcast	1-2"	Hay, Pasture
6. Meadow fescue			s	s	s		s		12/1-12/20	25	Broadcast	1-2"	Hay, Pasture
7. Native Melic Grass			s	s	s		s		12/1-12/20	25	Broadcast	1-2"	Hay, Pasture

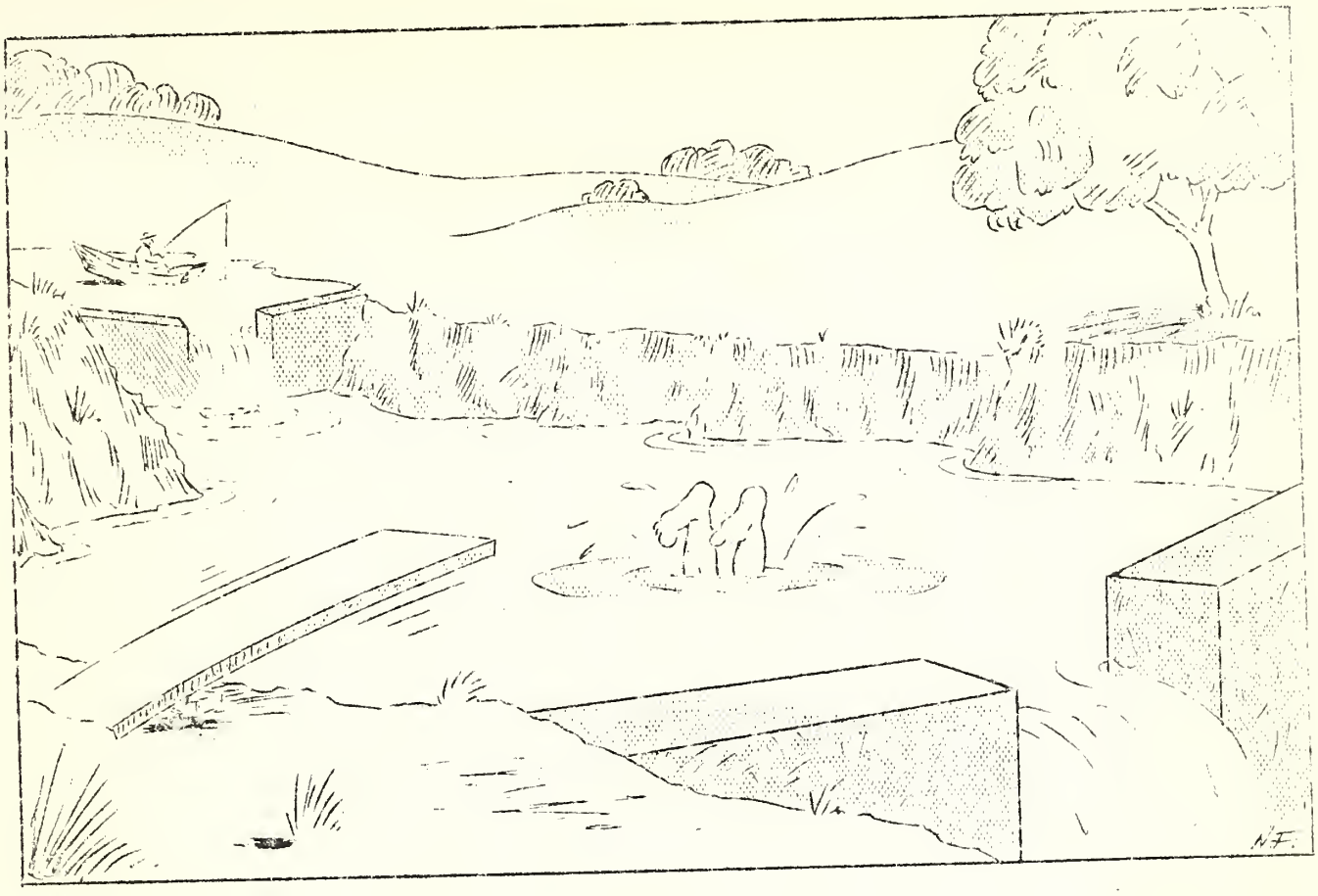
(S- Considered satisfactory for the region)



1- Harding Grass
2- Burnet
3- Meadow Fescue
4- Brome Grass
5- Rye Grass
6- Crested Wheat
7- Native Melic Grass

hay or pasture in years of normal rainfall are apparent. By using crops which produce growth in entirely different seasons of the year the grazing period may be extended considerably. It is also possible that two or three cuttings of hay may be obtained during the course of the year. The best methods and time for cutting and handling the crop, in addition to other practices mentioned in this article, will be determined.

Those crops, or combination of crops which answer the purposes for which they are intended, will be tested on larger areas. A limited quantity of seed will then be kept on hand for distribution to any cooperator who has land to be retired from cultivation.



W. A. Rockie, Regional Director for the U. S. Soil Erosion Service in Washington-Oregon, visited Santa Paula the fourth of the month and was taken over the demonstration area in the Las Posas by our Regional Director. The visitor said that the people of the northwest are "very erosion conscious". Although silting of reservoirs is not generally thought to be a problem in that section of the country he cited the case of a combination power dam and millpond, near Lewiston, Idaho, that had almost completely silted up in six years. The pond originally covered an area of over one hundred acres for storage of logs, many of which were stranded in the silt.

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"An equivalent of a quarter of a million farms of about 160 acres each have been abandoned as a result of soil erosion." - S. P. Lyle, Senior Agricultural Engineer, U. S. Department of Agriculture.

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J. W. Nelson, Assistant Regional Forester in charge of range management, San Francisco; C. J. Kraebel, Senior Silviculturist, Berkeley; and E. W. Kramer Sr., Regional Engineer Forest Service, San Francisco, visited the Las Posas demonstration area the thirteenth.

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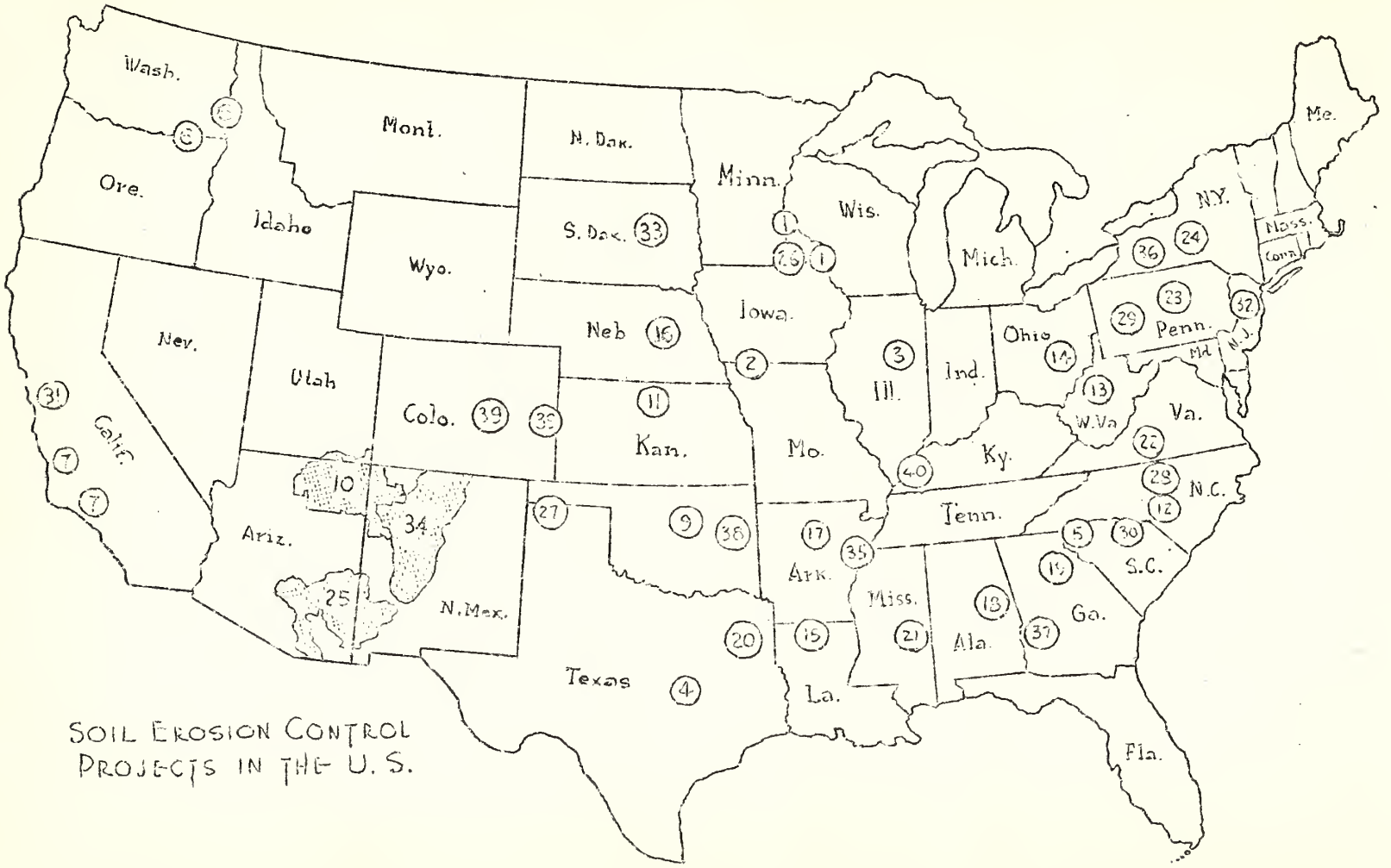
Ray S. Carberry, Superintendent of S.E.S. Cal-2, Arroyo Grande, reports that: "Dr. David Weeks, Professor of Agriculture Economics; J. H. Manghan, Regional Land Planning Consultant, Logan, Utah, and Dr. P. J. Weber, Land Consultant, Berkeley, visited the Camp and were shown over the project March 30, and were well pleased." That's all folks - Walter A. Lloyd.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